

CLAIMS

What is claimed is:

- 5           1.    An apparatus for generating a coherent laser beam  
from an emission of a series of diode lasers, comprising at  
least one row of source diodes and a system for transforming  
the primary light emission emitted by the source diodes into  
secondary coherent light emission, wherein the system for  
10 transforming the primary emission into secondary coherent  
light emission includes a hologram, which comprises an image  
of an interference pattern of the primary light emission and  
the secondary coherent light emission, so that when  
illuminating the hologram with the primary light emission,  
15 the hologram reflects the secondary coherent light emission,  
and wherein a mirror is provided in the path of the secondary  
coherent light emission which reflects at least some of the  
secondary coherent light emission via the hologram to the  
diode lasers.

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2. A method for generating a coherent laser beam from an emission of a series of diode lasers, comprising the generation of primary light emission with the aid of the diode lasers after which the primary light emission is  
5 transformed into secondary coherent light emission by using the primary light emission to illuminate a hologram containing an image of an interference pattern of the primary light emission and the secondary coherent light emission and by reflecting at least some of the secondary coherent light  
10 emission to the hologram for the generation of tertiary light emission, which beams contrary to the primary light emission but has a same phase relation, and wherein the tertiary light emission is used as provider of a feedback signal for the diode lasers.

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3. A method for making a hologram that is suitable to be used in a method and apparatus generating a coherent laser beam from an emission of a series of diode lasers, comprising the generation of primary light emission with the aid of the diode lasers, after which the primary light emission is directed at an at least partly permeable recording medium for recording an interference pattern, after which the primary light emission that has passed through the recording medium is concentrated and directed at a photoreflective crystal in a self-pumped configuration, or at a crystal that is fed by a pump beam such that the photoreflective crystal returns a light emission that is phase-conjugated with the primary light emission to the diode array in order to provide the diode lasers with a feedback signal, while a reference signal is directed at the recording medium so that together with the primary light emission, it can form the interference pattern.

4. A method according to claim 3, wherein the primary light emission that has passed through the recording medium is concentrated by means of a lens.